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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,378	01/05/2004	Shoichiro Usui	F-8098	2639

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EXAMINER	
FORD, JOHN K	

ART UNIT	PAPER NUMBER
3753	

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/751,378	USUI, SHOICHIRO	
	Examiner	Art Unit	
	John K. Ford	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 5/17/2005

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Applicant's response of May 17, 2005 has been carefully considered. The only argument presented in favor of patentability is that the prior art previously relied upon does not show the newly claimed expansion tank. Expansion tanks connected to the coolant system of internal combustion engines are so well known that it is difficult to imagine finding a modern automobile or diesel engine without one.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as obvious over JP 11-200956 in view of any one of JP 2003-278544, JP 2002-285843, Plaff et al (USP 6,343,572), Derwent publication 2002-423613, JP 08-261071 or Saito et al (USP 6,758,173).

JP '956 discloses an EGR cooler 20 that has a valve 40 controlling the engine coolant flow responsive to exhaust gas temperature to maintain the exhaust gas temperature at a minimum of " for example, 100 degrees C ", for the purpose of preventing the formation of sulfuric acid in the exhaust. This is disclosed at step S28 in Figure 2 where the question is posed: Is EGR gas temperature greater than or equal to T3? In the disclosure an example temperature of 100 degrees C is given for T3. If the answer is "No" then the water valve 40 is set to a minimum position.

Regarding the 120 degrees limitation in claim 5, to have set the minimum temperature of 100 degree C disclosed in JP '956 (as an example temperature), up to 120 degrees C to give an extra margin of safety to advantageously avoid condensation (and the ensuing corrosion) would have been obvious to one of ordinary skill.

Moreover since claim 1 only requires the boiling point to be greater than 150 degrees C, official notice is taken of the fact that standard engine coolant (ethylene glycol based products such as "ZEREX" and other antifreeze sold in supermarket and auto-supply stores in the United States) have a boiling point of 106 degrees C (in a 50/50 mix with water) at atmospheric pressure. At higher pressures the ethylene glycol boils at high temperatures. For example, at 14-15 psi above atmospheric pressure the boiling point such antifreeze increases to 131 degrees C. At even higher pressure the boiling point rises to 150 degrees C and then higher as pressure goes up further. This behavior is shown in col. 10, lines 40-60 of USP 5,868,105, which forms no part of this rejection except to show conventional knowledge in the field.

The prior art to JP 2003-278544, JP 2002-285843, Plaff et al (USP 6,343,572), Derwent publication 2002-423613, JP 08-261071 or Saito et al (USP 6,758,173), each individually teach an exhaust gas cooler that is connected to a liquid circulating coolant circuit that has an expansion tank associated with it. See JP 2003-278544, tank 35 and the description thereof, JP 2002-285843, tank 23 with a liquid coolant level "x", Plaff et al (USP 6,343,572), with exhaust gas cooler 17 and expansion tank 25, Derwent

publication 2002-423613, EGR cooler 15 and reservoir tank 39, JP 08-261071, EGR cooler 13 and reserve tank 11 or Saito et al (USP 6,758,173), EGR cooler 31 and an expansion tank shown (but not described) to the right of radiator 27. In view of anyone of these teachings it would have been obvious to have equipped the system of JP'956 with an expansion tank to take up the temperature induced expansion of the coolant so that the system advantageously wouldn't explode or undergo extreme temperature induced expansion and damage during use.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claims 1-5 above, and further in view of Charlton et al. and optionally Malatto et al.

Charlton in col. 6, lines 31-51 contemplates using coolants with higher boiling points than conventional water-glycol coolants discussed in previous rejection. Specifically at least 110 degrees C is contemplated in col. 8, lines 46-50 as a coolant temperature. Thus, the boiling point of the coolant in Charlton must be at least 110 degrees C. To have selected 150 degrees C coolant so that there was some margin of safety to avoid "boil-over" would have been obvious.

Malatto merely teaches lubricating oil as an extremely high boiling point engine coolant (well over 150 degrees C, typically about 300 degrees C), which would have also been obvious to have used for the reasons discussed in Malatto.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP§706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to John Ford at telephone number 571-272-4911.